

Urban Levee Design Criteria - Responses to Public Comments (May 2012)					
No.	Section in ULDC	Author Name/ Organization	Date	Comment	Response
1	7.7	Ron Stork/Friends of the River	11/29/11	Use of the term "typical high water" is not clear. Do you define it? It should not be the same as "average", as there could be a fairly significant difference.	The analysis of seismic vulnerability includes evaluations at two water levels, one representing a typical winter water level and one representing a typical summer water level. The engineer would be free to determine these levels by looking at the average, the median, or some other appropriate way. Engineers are to use some judgment here. Usually, the results should be relatively insensitive to the assumed water surface elevation because the main issue is whether there are saturated, liquefiable soils present. DWR has used average summer and winter water levels as representing "typical" summer and winter levels.
2	7.11 and 7.16	Dave Shpak/City of West Sacramento	11/29/11	There is a 5' difference between levee vegetation requirement for clear zone (15 feet) and requirement under Right of Way (20 feet).	Section 7.16 is revised to require trimming up and thinning in the 5-foot zone between the 15 feet and 20 feet landward of the landside levee toe.
3	7.16	Kelly Barker	11/29/11	The resource agencies have some major concerns with life cycle management, its impact on the ecosystem, species and habitat and its ability to be permitted and mitigated in-kind.	DWR believes life cycle management is the best approach for managing existing vegetation in the vegetation management zone. Analysis of impacts and mitigation are outside the scope of the ULDC and covered in other DWR documents.
4	7.16	Terri Rie/CVFPB	11/29/11	Has any research been done to determine what impacts the 5-foot trimming will have on the tree limbs overhanging the rivers and streams that provide food for the fish? I, speaking for myself, am concerned about the waterside tree trimming impacts on water temperature and shading needed for fish. This question is regarding existing, standard geometry levees (without planting berm).	Analysis of impacts and mitigation are outside the scope of the ULDC and covered in other DWR documents. The California Levee Vegetation Research Program is considering this question.
5	7.16	Kelly Barker	11/29/11	The resource agencies also have concerns about restricting planting to the planting berm as the berm will only provide habitat for some species (mainly fish). There needs to be some ability to increase riparian connectivity in the Central Valley so listed species are not further compromised and so no species do become listed.	Section 7.16 is revised to include Subsection 7.16.8 Vegetation Planting and to identify additional situations in which planting is permissible. A figure has been added to illustrate a landside planting berm.
6	7.16.7	Kelly Barker	11/29/11	Section 7.16.7 says LCM is required. If LCM is not accepted by the USACE as an interim or permanent solution and levees fall out of PL 84-99, will DWR still require LCM to be continued?	Yes. The ULDC requires LCM (and trimming and thinning) as the minimum vegetation management practice in the vegetation management zone, whether or not USACE decides it is an acceptable practice for maintaining PL 84-99 eligibility.
7	Attachment 1	Terri Rie/CVFPB	11/29/11	For Non-Corps levee improvement projects, does the independent review panel need to be formed based on the criteria in EC 1165-2-209?	Yes, the independent review panel requirements are the same for project and non-project urban levees. However, the procedural requirements, such as for independent review, are no longer contained as an attachment to the ULDC and instead are included in the Draft Urban Level of Flood Protection Criteria (April 2012).
8	7.1	Butch Hodgkins/CVFPB	11/29/11	For those of us who have to manage the system, you have two different approaches to determine WSE. What are we supposed to use for DWSE if we are trying to determine if a project has a hydraulic impact. What is the protocol?	Hydraulic impacts policy was considered as a potential topic to be covered by the ULDC. But it is not necessary to have such a policy in order to determine the Design Water Surface Elevation, or other levee characteristics. So it was not included. It is a policy that DWR is working on separately.

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9	7.1	Ron Stork/Friends of the River	11/29/11	DWSE is presumably the basis for floodway capacity numbers, CFS, I am curious how the Board plans to determine floodway capacity. Does the Board intend to revise their discharge capacity numbers for designated floodways as a result of what DWR is doing (with the ULDC)?	This topic is outside the scope of the ULDC.
10	3.0	Mike/HDR	11/29/11	Was there discussion of duration of loading and frequency when talking about frequently-loaded levees?	No, duration was not taken into account. It was assumed that even if the loading is one foot above the landside toe for a few minutes, then that counts as a day in which the levee held water one foot above the landside toe.
11	General	Butch Hodgkins/CVFPB	11/29/11	There was talk about how these standards are not only for design and construction, but O&M. Are the criteria going to be incorporated into DWR's inspection criteria?	These criteria apply to levees that DWR would not be inspecting as well as levees DWR is inspecting. Where DWR is inspecting, the inspector would review documents like the Security Plan.
12	7.7	Butch Hodgkins/CVFPB	11/29/11	On the 200-yr seismic event for levees that are not regularly wetted, are you saying these levees have to be designed to survive a 200-yr event?	It is not required they survive, but a plan to repair the expected damage in a timely manner is required.
13	7.11	Ron Stork/Friends of the River	11/29/11	With regard to not just visibility and access, but is there a requirement that there be space set aside for potential future expansion? It's a smart thing to do. I think that DWR also needs to look at the CVFPB that has requirements for expansions, not just hypothetical but also planned.	This is advised, but not required, where it would be feasible to do so (where little development has occurred).
14	7.11	Butch Hodgkins/CVFPB	11/29/11	The 20-ft clear zone, in regards to the chart for ROW, what is your expectation? If you don't require an easement, I don't know how a local government can deprive a property owner of use of the property.	Section 7.11 is revised to indicate that either easement or fee title is acceptable, but fee title is preferable from an encroachment control perspective. Furthermore, the revised text also offers the possibility of making arrangements with the land owner.
15	7.19	Ron Stork/Friends of the River	11/29/11	With requirements for sea level rise, some agencies have said planning for a 5-ft rise over 100 yrs for ones that are affected by sea level, you are asking agencies to plan for 20 years of sea level rise. It would seem that in the not so distant future, your access routes would change, I would think maybe the width would not be reasonable enough.	Concur. In some cases, it may be justified to provide more than 20 feet so as to avoid making a second acquisition within the next few decades.
16	7.11	Butch Hodgkins/CVFPB	11/29/11	Under the long term plan, I don't think that you have the ability to use eminent domain to acquire property under a long-term plan, and if you can do it over 50 yrs, I don't know how you are going to show public necessity. We need to think about how bad we want that 10-ft easement in areas where there is an existing development.	Concur that this may be difficult in some situations and may limit acquisitions in the early years of the long-term plan to mostly, or entirely, voluntary acquisitions. If not possible to acquire, an exception may be needed, following the procedure for exceptions discussed in the Draft Urban Level of Flood Protection Criteria (April 2012).

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17	7.11 and 7.18	Dave Shpak/City of West Sacramento	11/29/11	With respect to West Sac, for ROW and Security, can you talk about joint use, in respect that would not interfere with the clear zone requirement, it is prescriptive that if there isn't joint use. In respect to security, can you speak to allowing more access to help?	With respect to joint use, it is very possible to provide the ability to have access and visibility. It is encouraged and there are plenty of projects that have it. There are a lot of eyes on the levees that way, we agree the more eyes the better with respect to security. The goal is to increase reporting and awareness.
18	8.0	Ron Stork/Friends of the River	11/29/11	There are O&M manuals for channel maintenance that still exist. I am not so sure you need to tackle in terms of levee design criteria.	Concur. Section 8 will continue to reference the USACE O&M manuals, and not provide channel maintenance criteria.
19	7.11	Dave Shpak/City of West Sacramento	11/29/11	With regards to ROW, when do you define a new levee?	When it is a brand new levee, and there has not been a levee there before.
20	7.16	Ron Stork/Friends of the River	11/29/11	In light of ongoing litigation, we should not assume that the Corps Vegetation policy that exists today will be the same 5 years from now.	The vegetation criteria in the ULDC are based on current understanding of levee vegetation and may change based on experience and/or research.
21	7.16	Dave Shpak/City of West Sacramento	11/29/11	For specifications for root removal, is DWR thinking of guidance where more extensive guidance for root removal will be needed?	USACE and the California Levee Vegetation Research Program are considering this question. Based on experience and/or research, root removal requirements may be modified or made more specific in the future.
22	Attachment 1	Butch Hodgkins/CVFPB	11/29/11	The expert panel should be done before the public review and should be mandatory.	Concur. This was the approach taken, and is now contained in the Draft Urban Level of Flood Protection Criteria (April 2012).
23	Attachment 1	Butch Hodgkins/CVFPB	11/29/11	It seems that the biggest uncertainty is the question of climate change. Would it be worth putting something in the 5-yr review, so the engineer looks at the changes that have been documented as far as sea level rise? Can we include something in the document to consider in the 5-yr review?	Based on research, climate change is a slow-progressing phenomenon. It was assumed that there would probably not be changes on the scale of 5-years, but more like 20-years (the maximum life of a Finding).
24	7.1	Ron Stork/Friends of the River	11/29/11	For the basic concept that we have for urban levee design, there are a lot of us with a basic understanding. FEMA could change their method. DWR could say that they rely on the two bodies (FEMA and Corps), but are these the methods that they could use?	Section 7.1 is revised to note that the most current guidance documents should be used. But when the ULDC is written as regulations, the regulations must be written in a way that the actions of others cannot change them. When the regulations say to follow FEMA guidance, the criteria will be locked into specific FEMA guidance as of that date. The same is true with USACE guidance. This means the regulations will need to be updated occasionally to incorporate new FEMA and USACE guidance, as appropriate.
25	7.16	Kelly Barker	11/29/11	If LCM is not accepted by the Corps, will DWR still require it to be continued?	Yes. The ULDC requires LCM (and trimming and thinning) as the minimum vegetation management practice in the vegetation management zone, whether or not USACE decides it is an acceptable practice for maintaining PL 84-99 eligibility.

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26	7.11 and 7.18	Keith Jones, PE	12/15/11	I am a citizen advocate for expanded public access to the State's water resources. These comments address concerns with public recreational access along California's streams and rivers. Government agencies cannot sell or give away rivers to private ownership or control, because rivers are held "in trust" for the public under the Public Trust Doctrine. Access to allow the public to fish, boat, and recreate along rivers is part of the "public trust" doctrine, which allows egress to a strip of land along navigable rivers for these purposes.	Section 7.18 is revised to clarify that access restrictions are generally for motor vehicles. Other types of access, such as pedestrian, cycling, and fishing, are generally not considered a security threat.
27	7.11	Keith Jones, PE	12/15/11	Levees function to artificially retain the river and establish the "high-water mark", and since the public has a right, which goes back to the confederation, to access to navigable waters, I believe the design criteria fail to support this fundamental right. Specifically, I would like to see the issue of public access incorporated into Section 7.11.	See response to comment 26.
28	7.18	Keith Jones, PE	12/15/11	Section 7.18 Security is inappropriate and counter to the public trust doctrine. This section needs to be reworked in its entirety, so as to limit security to structural integrity issues, and not limit legitimate public access to our waterways.	See response to comment 26.
29	7.18	Keith Jones, PE	12/15/11	The issue of gates is central to my concern, specifically; they represent a threat to public safety during high-water. Gates, fences and other penetrations or obstructions of the levee can cause hydraulic erosion of the levee and lead to a breach. Where gates are necessary to limit vehicular access, design standards for bollards to facilitate bicycle and pedestrian traffic should be incorporated.	See response to comment 26.
30	7.18	Keith Jones, PE	12/15/11	It appears that DWR has not coordinated with the State Lands Commission on the issue of public trust. Considering that State Lands is the State Agency with ownership of our rivers, this is quite surprising. At a minimum I would expect DWR to provide a substantive opportunity for the State Lands Commission to comment on this document.	See response to comment 26.
31	3	James B. Giottonnini, SJAFA	12/15/11	1. P. 3-1, The second and third bullets refer to paragraphs (a) and (b) which have apparently been deleted in this draft.	Concur. The text is revised to make this correction.
32	3	James B. Giottonnini, SJAFA	12/15/11	2. P. 3-3: The second bullet refers to paragraph (a) which has been apparently deleted from the first bullet.	Concur. The text is revised to make this correction.

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33	4	James B. Giottonnini, SJAFCA	12/15/11	3. P. 4-1 : The end of the second paragraph notes that "this is explained further in Section 4.0". It should be changed to 5.0.	Concur. The text is revised to make this correction.
34	6.3	James B. Giottonnini, SJAFCA	12/15/11	4. P. 6-2, "6.3 Hydrologic and Hydraulic Design Principles" We had hoped that the CVFPP would include 200-year flows for streams in the Stockton area (ie. Bear Creek, Calaveras River, Diverting Canal, Mormon Slough, French Camp Slough, San Joaquin River, etc.). This document seems to suggest that each city and county would need to make those calculations. Also, it is our understanding that the approach noted in the document would result in a greater flow than a 200-year event using the Corps Feasibility Study approach. Is this your understanding?	It is not the intent of the ULDC to place on cities and counties an unreasonable burden for new—and potentially costly—hydrology and hydraulics studies. That is why the ULDC permits the engineer who makes the finding to (a) select from two alternative approaches to determining the Design Water Surface Elevation, and (b) use results of recent USACE, DWR, or other studies. Comparing the results of various hydrology studies is not within the scope of the ULDC. Neither higher or lower values are required by ULDC—only best available, as determined by the engineer responsible for the finding, using the hydraulic model assumptions and adjustments described in Section 7.1. The engineer would need to consider whether a previous study may have used different assumptions that would affect the results at a particular location. For example, the Comprehensive Study contains hydraulic model results for several scenarios -- one of which is reasonably consistent with the hydraulic model assumptions described in Section 7.1. Furthermore, upon conclusion of the on-going Central Valley Flood Evaluation and Delineation (CVFED) activities, refined estimates of design flows and WSELs will be available for many sites for a condition that is reasonably consistent with that required by the ULDC. The intent of the ULDC language is that those estimates would be useful, whether the values are higher, lower, or the same as previous estimates. The ULDC parallels the USACE approach to estimating stage frequency for levee evaluations for the NFIP, for permitting, for design, and for feasibility studies. These do not rely on other levees in the region to breach and thereby reduce the flood stage that will be experienced by the levee that is under evaluation. Accordingly, flows estimated in conformance with ULDC guidance should be reasonably consistent with flows estimated for a USACE feasibility study.
35	7.1.1	James B. Giottonnini, SJAFCA	12/15/11	5. P. 7-1, "7.1.1 FEMA Approach '~ It notes that "If results of a recent frequency study completed by the Corps or DWR are available, the median 200-year discharge rate from that study is to be used. In the absence of an appropriate discharge rate from such a recent study, the 200-year discharge rate at the site from the 2002 Comprehensive Study may be used ... "Do these "recent frequency studies" and the Comp Study meet the hydrologic and hydraulic design principles noted on P. 6-2?	The intent of the ULDC is to require use of the best-available estimates of the design flow rates and corresponding Design Water Surface Elevation. In some cases, results from the Comprehensive Study are the best available for a site, and in those cases, the engineer who makes the finding would use those unless he/she conducted a new study, provided the model results are consistent with the hydraulic model assumptions described in Section 7.1 (see response to Comment 34 for more information). For other sites, more recent FEMA, Corps, DWR, or other studies may reduce the uncertainty or improve the accuracy of estimates. In those cases, the improved estimates should be used, as those are the best available. For example, upon conclusion of the on-going Central Valley Flood Evaluation and Delineation (CVFED) activities, refined estimates of design flows and WSELs will be available for many sites. The intent of the ULDC language is that those estimate would be useful, whether the values are higher, lower, or the same as previous estimates.
36	7.1.2	James B. Giottonnini, SJAFCA	12/15/11	6. P. 7-3, 3'd bullet: What is meant by "authorized height" for non-project levees and floodwalls in non-urbanized areas?	The existing height may be lower than as-built or authorized due to settlement or subsidence. The idea is to not rely on that discrepancy to continue - - because the levee maintainer may restore the height to its authorized elevation as part of the levee maintenance program.

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37	7.2	James B. Giottonnini, SJAFCA	12/15/11	7. P. 7-5, 1st paragraph: Should be revised to reflect the new FEMA policy on "without levee" analysis.	FEMA has issued a draft policy for floodplain mapping of non-accredited levees that is subject to change based on public comment. That draft policy would develop a Zone D instead of a Special Flood Hazard Area behind a levee that is structurally sound but is freeboard deficient. It is too early to say what the new FEMA policy will be, so the current policy is covered on page 7-5 of the Draft ULDC (now page 7-6 of the ULDC).
38	7.2	James B. Giottonnini, SJAFCA	12/15/11	8. P. 7-5, 2nd paragraph: We strongly question the advisability of adding a freeboard levee where the DWSE is fully contained within a channel.	Where the Design Water Surface Elevation is contained in the channel within 3 feet of the top of the bank, a freeboard levee is required because it provides the safety factor for containing the water. But, it is also noted that floodplain mapping procedures take a different approach and therefore, this requirement is not actually enforceable and cities and counties may choose to not include a freeboard levee when making a Finding. Caution should be exercised before deciding whether or not to construct a freeboard levee.
39	7.11.1	James B. Giottonnini, SJAFCA	12/15/11	9. PP. 7-21- 7-22, "7.11 Right-of-Way": Though we agree with the concept of 20 ft. in fee title or easement beyond the landside toe, this will be extremely onerous on cities/counties. For example, in Stockton there are approximately 100 miles of levees. This requirement could mean the acquisition of approximately 250 acres. Assuming \$50,000 per acre would result in an expense of over \$12 million. Also, what nexus/legal authority would allow a city/county to acquire property rights "at time of property sale or transfer of ownership"? Aside from the lack of legal authority, cities/counties have no practical way to track the sale of properties or to prevent a sale from being completed.	Concur that 20 feet is appropriate, but may be expensive and challenging to acquire. So two options are provided for this situation, to make this option feasible for cities and counties over the long term. Section 7.11 is revised to reflect that acquiring property rights at time of sale or transfer is only one example of a way of securing the right of way, as allowed by law.
40	7.11.2	James B. Giottonnini, SJAFCA	12/15/11	10. P. 7-23, "7-11. 2, Right-of-Way for Long-Term Flood Protection": Though we commend the concept of a "future needs area", we have concerns about the nexus legal authority that would allow a city/county to acquire the property rights. Also, the requirement that "No structures may be constructed in the future needs areas" may trigger inverse condemnation concerns if the property rights have not been acquired.	Concur that the future needs area is desirable. But it is not required. Section 7.11 has been revised to make this more clear.
41	7.12.1	James B. Giottonnini, SJAFCA	12/15/11	11. P. 7-25, 1st bullet: The first sentence should be rewritten : "For other encroachments but cannot be <i>allowed</i> (?) due to "	Section 7.12 has been revised to clarify that this statement pertains to encroachments that have not been permitted.
42	7.12.1	James B. Giottonnini, SJAFCA	12/15/11	12. P. 7-25, 1st bullet: Cities have no jurisdiction over levees. What legal authority does a city have to remove or permit non-compliant encroachments? This should be the responsibility of the Central Valley Flood Protection Board for project levees, or the local maintaining agency for non-project levees.	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. Section 7.12 purposely does not specify who would do what, just that a plan for addressing encroachments is required. This provides flexibility for assignment of responsibilities in each situation.

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43	7.13.3	James B. Giottonnini, SJAFCA	12/15/11	13. P. 7-26, "7.13.3 Transportation Penetrations": It is unclear who is responsible to remove or properly abandon hazard penetrations. Cities/counties do not have authority to remove or properly abandon hazard penetrations of state highways, railroads, or utilities.	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation. Section 7.13 has been revised to offer the option of a plan to address outstanding unpermitted penetrations that are not considered to be high hazard.
44	7.13.4	James B. Giottonnini, SJAFCA	12/15/11	14. P. 7-26, "7.13.4 Investigation for Unknown Penetrations": Who is responsible to provide a permit application for any unpermitted pipe to the permitting agency? Who is responsible to remove or abandon the pipe?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation.
45	7.13.5	James B. Giottonnini, SJAFCA	12/15/11	15. P. 7-27, "7.13.5 Abandoned Penetrations": Who is responsible to hire the civil engineer? Who is responsible to remove or abandon the pipe?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation.
46	7.13.6	James B. Giottonnini, SJAFCA	12/15/11	16. P. 7-27, "7.13.6 Pipe and Culvert Inspection": Who is responsible for the Inspection testing? Who prepares the inspection report? Who are the "qualified personnel"?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation. Section 7.13 has been revised to refer to qualified officials instad of qualified personnel.
47	7.15	James B. Giottonnini, SJAFCA	12/15/11	17. P. 7-28, "7.15 Burrows": Educational, but not sure why it is included.	This new section was added because animal burrows are a significant risk factor that have jeopardized the integrity and performance of some levees. The intent is to be helpful and rectify some historic maintenance practices that have not properly addressed burrows.
48	7.16.1	James B. Giottonnini, SJAFCA	12/15/11	18. P. 7-29, "7.16.1 Engineering Evaluation": Who is responsible for removal of identified trees? Who is responsible for backfilling?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation.
49	7.16.2	James B. Giottonnini, SJAFCA	12/15/11	19. P. 7-30, "7.16.2 Routine Inspection": Who is responsible for monitoring?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation. But, usually this would be the levee maintaining agency.
50	7.16.3	James B. Giottonnini, SJAFCA	12/15/11	20. P. 7-30, "7.16.3 Newly Constructed Levees": If this pertains to newly constructed levees, not sure why there is a limitation: "or less if the existing easement is less than 15 feet."	Concur. Section 7.16 has been revised to remove this statement.

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51	7.16.4	James B. Giottonnini, SJAFCA	12/15/11	21. P. 7-30, "7.16.4 Levee Repair or Improvement": Who is responsible for removal of vegetation?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation.
52	7.16.7	James B. Giottonnini, SJAFCA	12/15/11	22. P. 7-31, "7.16.7 Life-Cycle Vegetation Management": Who is responsible for periodically evaluating and removing vegetation?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation. But, usually this would be the levee maintaining agency.
53	7.17	James B. Giottonnini, SJAFCA	12/15/11	23. P. 7-34, 3rd paragraph: "Six feet of freeboard should be considered sufficient" seems extreme for small streams.	It is unlikely that the computations would result in a large freeboard requirement, such as 6 feet, on small streams. The excessively high calculated freeboard amounts occur on large fetches, such as may occur on wide bypasses.
54	7.18	James B. Giottonnini, SJAFCA	12/15/11	24. P. 7-34, "7.18 Security": Who is responsible to prepare the plan?	Section 1.0 has been revised to note that some actions required to achieve the urban level of flood protection will take cooperation between the levee maintainer, the city, and/or the county. This section purposely does not specify who would do what. This provides flexibility for assignment of responsibilities in each situation.
55	7.20.1	James B. Giottonnini, SJAFCA	12/15/11	25. P. 7-38, "7.20.1 Flood Relief Structures": Are the pumping plants only those needed in the event of a levee breach or flood wall failure?	Yes.
56	General	James B. Giottonnini, SJAFCA	12/15/11	We want to acknowledge DWR's efforts in completing the 5th draft of the "Urban Levee Design Criteria" dated November 15, 2011 . You are to be commended for the collaborative approach to build consensus among the various stakeholders on this important document.	Thank you. DWR appreciates the collaboration and the resulting improvements to the document.
57	General	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	We appreciate the clarification in the Introduction that criteria presented using terms such as "must," "shall," "is required," and "needs to," and other similar terms in the document are considered to be mandatory and if not followed an exception is needed. We believe there are several places in the document where these terms are lacking and will point them out in our specific comments section	Comment noted
58	General	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	The Working Draft 201 2 Central Valley Flood Protection Plan states that ecosystem restoration opportunities are considered part of flood risk reduction projects. These opportunities are not simply part of system improvements but are also part of urban, small community and rural agricultural area flood protection projects. We did not sense ecosystem restoration was included in the Urban Levee Design Criteria.	DWR agrees that flood projects should include ecosystem restoration, where feasible. But mitigation and ecosystem restoration are not appropriate to require as a factor in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.

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59	General	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	The Central Valley Flood Protection Plan when discussing the State System-wide Investment Approach goes on to state that for urban area improvements- urban flood protection projects should, at a minimum, preserve and restore important shaded riverine aquatic habitat along riverbanks and help restore the regional continuity/connectivity of such habitats. The approach of preserving important habitat does not seem to be conveyed well within the Urban Levee Design Criteria.	DWR agrees that flood projects should include ecosystem restoration, where feasible. But mitigation and ecosystem restoration are not appropriate to require as a factor in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies. Section 7.16.8 has been added to expand the options for plantings along levees. The figure for a landward berm has likewise been modified. Plantings may be allowed on specially designed planting berms or on natural ground waterward of the levee fill.
60	General	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Lastly, we believe the Department of Water Resources' (DWR) Environmental Stewardship policy which includes a provision for DWR to include environmental stewardship and ecosystem protection and restoration as a criterion in project funding decisions for all DWR programs should be referenced in the document.	DWR agrees that flood projects should include ecosystem restoration, where feasible. But mitigation and ecosystem restoration are not appropriate to require as a factor in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.
61	3	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 3-8, Vegetation management zone. The definition provided here could be improved by referencing the specific Figure (Figures 7-4-through 7-7) after the appropriate sentence in the definition. Also, we note some discrepancy in the definition provided here and the discussion of vegetation management zone beginning on page 5-12 of Attachment 2 Conservation Framework of the 20i 2 Working Draft Central Valley Flood Protection Plan.	Concur. Section 3.0 is revised to specify the figures and clarify the definition of vegetation management zone.
62	5	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 5-2, DWSE. Although the acronym DWSE is defined in Section 3.0 Definitions, it would be helpful write it out the first time it is used in the document. This comment would apply for other acronyms such ULDC and HTOL. We did note that DWSE is defined later on page 7-1 and MOTL is defined at its first use on page 7-4.	Before releasing the final document in 2012, a professional editor performed a review for conformance to accepted norms.
63	7.10	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-19, Section 7.10 Erosion. The last sentence states: Erosion hazard is increased by a number of/actors, which include: and the last bullet is ... Absence of beneficial vegetation or other slope protection. This seems to conflict with the statement on page 7-31 where the last sentence in Section 7.16.5 states: Brush, weeds or other such vegetation over 12 inches high are to be removed in an authorized manner. In some cases removal of this vegetation could increase or allow erosion to occur.	Concur. Vegetation removal has the potential to result in levee erosion. Engineers and levee maintaining agencies would need to consider this, monitor and inspect, and possibly take steps to prevent the erosion, such as by planting grass.

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64	7.10	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-21, first paragraph, last sentence. In addition to native grasses, we believe lower waterside woody vegetation could be used to mitigate dispersive soils. This is also consistent with language in the Working Draft 2012 Central Flood Protection Plan (page 4-12) where it states: From a flood threat perspective lower waterside slope vegetation rarely presents an unacceptable threat to levee integrity. However, lower waterside slope vegetation more typically provides beneficial functions, such as slowing near shore water velocities and holding soil in place to reduce erosion.	Woody vegetation is unlikely to significantly mitigate erosion problems related to dispersive soils.
65	7.11	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-22, Right-of-Way Access and Inspection. Somewhere in the first bullet there should be a statement that removal of vegetation shall be mitigated and that prior to vegetation removal the appropriate resource agencies shall be consulted, (i e., pertinent State and Federal laws are followed such as ESA, CESA, and the Migratory Bird Treaty Act).	DWR agrees that mitigation and consultation are important. But mitigation and consultation requirements are not appropriate to establish as criteria in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.
66	7.12.1	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-24, Section 7.12.1 Assessment of Existing Encroachments. It should be made clear in this section that the removal of encroachments shall be mitigated and prior to removal the appropriate resource agencies shall be consulted. We recognize this section excludes vegetation encroachments, but believe there are other encroachments in which removal could have adverse environmental effects depending on location, time of year etc. This same comment would apply in Section 7.13 Penetrations and Section 7.14 Floodwalls, Retaining Walls, and Closure Structures that are proposed for removal.	DWR agrees that mitigation and consultation are important. But mitigation and consultation requirements are not appropriate to establish as criteria in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.
67	7.15	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-28, Burrows. While the section acknowledges regulatory agencies may have different requirements for environmental compliance from the Corps of Engineers' Levee Owner's Manual for Non-federal Flood Control Works it should require that the design and evaluation of plans to control rodents be coordinated with the appropriate resource agencies. We also note that the presence of woody vegetation has been shown to reduce presence of some burrowing rodents.	DWR agrees that mitigation and consultation/coordination are important. But mitigation and consultation/coordination requirements are not appropriate to establish as criteria in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.

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68	7.16	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-29, Levee Vegetation, second paragraph, last sentence. We suggest changing the sentence to read: Engineers and levee maintaining agencies shall consider the results of this research when deciding how to manage trees and other woody vegetation on levees. Since State funds are being used to conduct some of this research, it does not seem unreasonable to require that it be considered.	The document encourages engineers and levee maintaining agencies to consider the results of ongoing research. It is not appropriate to require that they consider documents that we cannot specify.
69	7.16.1	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-29, Section 7.16.1, Engineering Evaluation. It should be made clear in this section that the removal of encroachments shall be mitigated and prior to removal the appropriate resource agencies shall be consulted.	DWR agrees that mitigation and consultation are important. But mitigation and consultation requirements are not appropriate to establish as criteria in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.
70	7.16.3	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-30, Section 7.16.3, Newly Constructed Levees. We believe emphasis should be placed on reducing long-term maintenance and repair costs, restore geomorphic processes, improve floodwater capacity, and accommodate expected hydrological changes due to climate change. [Working Draft 2012 Central Valley Flood Protection Plan Conservation Framework (page 4-16), Section 4.2.8 Levee Construction, Reconstruction, and Improvement]. Granted, this Urban Levee Design Criteria document addresses urban levee designs which have more restrictions to accomplish some, or all, of these criteria. At a minimum however, they should be mentioned and there should be a requirement that the opportunities at least be assessed.	This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies.

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71	7.16.4	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	<p>Page 7-30, Section 7.16.4, Levee Repair or Improvement. The first two sentences of this section: In cases of levee repair or improvement, vegetation shall be removed as required to meet objectives of the specific project. Vegetation removed as part of direct construction activities may not be replaced. This appears to conflict with the General Principles (page 6-1) which states: Encroachments and vegetation should be evaluated and managed so as not to impact levee and floodwall safety, while recognizing their benefits. It does not appear from this statement that vegetation benefits are evaluated at all. Additionally, it appears to conflict with the Working Draft 2012 Central Valley Flood Protection Plan Conservation Framework (page 4-16, Section 4.2.8 Levee Construction, Reconstruction, and Improvement) where it states: Construction of new levees and reconstruction of or improvement to existing levees will be needed to achieve various flood management objectives. Where new levees need to be constructed, they should be located to reduce long-term maintenance and repair costs, restore geomorphic processes, improve floodwater capacity, and accommodate expected hydrological changes due to climate change. Consistent with DWR levee vegetation management strategy, described in Section 5.4, where setback levees cannot be constructed, new or newly reconstructed levees should incorporate trees and other woody vegetation on the lower waterside slope and riverbank or berm, specifically designed for waterside planting. This planting berm, or the entire levee when necessary should represent an over-built section with respect to minimum geometries, and be of sufficient size and configuration to mitigate any potential negative impacts to levee safety.</p>	<p>Section 7.16 is revised to say that plantings pursuant to existing variances may also be allowed. The quote from the Conservation Framework is appropriate for a planning document, but not for criteria to decide whether a levee or floodwall provides 200-year protection.</p>

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72	7.16.4	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	The Conservation Strategy Framework goes on to discuss incorporating biotechnical bank protection on existing levees to reduce river erosion and wave energy, incorporating SRA [shaded riverine aquatic] vegetation into in-place repairs, and applying levee design criteria that promote compatibility with existing and potential floodway habitat. We believe the Urban Levee Design Criteria document should include this type of information and require they be examined. Additionally, this section suggests that engineers and levee maintaining agencies should consider preserving vegetation that does not present a threat and is considered essential for fish and wildlife species. We believe DWR should require engineers and levee maintaining agencies to leave this vegetation unless it poses an unacceptable risk to the levee. Vegetation removal from a system that has lost a huge amount of habitat will only further erode the baseline for listed species which will affect all flood control projects trying to move forward. The DWR should be requiring everyone to do their part in retaining or enhancing riparian vegetation within the Central Valley. In many cases small levee maintaining agencies may not have an opportunity to do much more than reduce their effects to existing vegetation, yet this document seems to limit them as to how they integrate restoration and enhancement into their projects by requiring the removal of existing habitat within the project area.	Absent an engineering reason to require vegetation on a levee, it is inappropriate to make it a criterion for deciding whether a levee or floodwall provides 200-year protection.
73	7.16.5	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	Page 7-31, Section 7.16.5, Levees with Existing Vegetation. The section includes the statement that Brush, weeds or other such vegetation over 12 inches high are to be removed in an authorized manner. We believe this means in accordance with State and Federal law, but it is not clear. We recommend language be added which requires consultation with the appropriate resource agencies prior to vegetation removal.	DWR agrees that mitigation and consultation are important. But mitigation and consultation requirements are not appropriate to establish as criteria in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section.

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74	7.16.7	Susan K. Moore, U.S. Fish and Wildlife Service	12/8/11	<p>Page 7-31, Section 7.16.7, Life-Cycle Management. We recommend the language here be expanded to include the information provided in the Conservation Framework, specifically: Life-Cycle Management CLCM) includes early establishment of riparian forest corridors ... to compensate for the eventual loss of this habitat. Initial removal of immature trees needs to be mitigated. LCM will be implemented in the vegetation management zone only. While we have supported the concept of LCM we still have concerns regarding its implementation and plan to work with DWR to develop it. It needs to be made clear to levee owners that during the period woody vegetation is allowed to live out its life on the levee crown, landside slope and levee easement areas, other similar habitat, either within the flood way or immediately adjacent the landside levee toe (outside the levee easement area), is developed concurrently. Otherwise, the net effect is complete elimination of woody vegetation on these areas of the levee, which would have detrimental effects to wildlife species, especially during high water events when the flood way is inundated. This vegetation provides refuge during flood events, foraging, breeding and sheltering areas throughout the year. Also, we expect waterside vegetation removal to be compensated in-kind (i.e., on the water side of the levee). A critical component of any LCM plan for vegetation will be identifying a site protection mechanism (conservation easement) and long-term funding for operation and maintenance in perpetuity for alternative vegetation areas, and a maintaining entity. Lastly, it should be made clear that any vegetation removed is subject to consultation with State and Federal resource agencies.</p>	<p>DWR agrees that mitigation and consultation are important. But mitigation and consultation requirements are not appropriate to establish as criteria in determining whether a levee or floodwall provides 200-year flood protection. This topic is covered in the Introduction section. The ULDC will apply beyond levees and floodwalls that are a DWR or CVFPB responsibility or that are funded by State monies. The quote from the Conservation Framework is appropriate for a planning document, but not for criteria to decide whether a levee or floodwall provides 200-year protection.</p>